

often occurring in a thin efflorescence on their surface. During winter and spring, while the rainy weather lasts, the sulphate flats, owing to their level surface and imperfect drainage, are very wet, but by or before the first of July, when the dry summer has well begun, they have become the driest of all dry places, for the clay prevented the water from soaking in, and the soil is so thin that an adequate store of moisture could not be laid up. What in early spring was the home of moisture-loving species, has in summer a coat of such species as *Iva angustifolia*, and *Ambrosia psilostachya*; but even these are matured earlier and are smaller on the sulphate flats than elsewhere, owing probably to their dryness. Even *Opuntia Rafinesquii* grows on the flats, but it, too, has an unhealthy dwarfish appearance, though for a different reason, as I take it; it must have been for it such a great effort to endure the protracted drenching in winter and spring. These sulphate flats are the home of *Isoetes Butleri*. It disappears between the middle of June and the first of July. It grows with *Plantago pusilla*, *P. Patagonica*, var. *aristata*, *Polygala verticillata*, *Arenaria Pitcheri*, &c. There are occasional basins in the flats which contain more or less water, and here *I. melanopoda* grows. It also occurs in nearly all pools, ditches and wet weather streams. It is much more common than the other, or at least appears so, as it is so much easier to find, owing to its greater size, and paucity of companions. It disappears in August. Neither species will do well if shaded.—GEO. D. BUTLER, *Almont, Iowa*.

AN ENUMERATION OF SOME PLANTS—CHIEFLY FROM THE SEMI-TROPICAL REGIONS OF FLORIDA—WHICH ARE EITHER NEW, OR WHICH HAVE NOT HITHERTO BEEN RECORDED AS BELONGING TO THE FLORA OF THE SOUTHERN STATES. BY A. W. CHAPMAN.

*Anona glabra*, L. Smooth; leaves sub-coriaceous, oval or oblong, acute, entire; peduncles short; petals thick and fleshy, ochroleucous, reddish within, the outer ones elliptical, the inner ones smaller, lanceolate; fruit smooth, globose or sub-conical, many-seeded; seeds oblong, compressed.—Banks of the Caloosa River, and near Miami, (Dr. Garber,) South Florida. June, fruiting in November.—A tree 10-30 feet high. Leaves, 3-5 inches long. Flowers,  $1\frac{1}{2}$  inches wide, fragrant.

*Nymphaea flava*, Lutres. A notice of this yellow Pond Lily is contained in Harper's Magazine for August, 1877. I have not seen the plant.

*Cypseloa humifusa*, Turp. Annual, smooth, succulent; leaves opposite, obovate; the petioles dilated into a lacerated stipule-like membrane; flowers axillary, minute, sepals obtuse, greenish within; petals none.—South Florida, *Dr. Blodgett* in Herb. Gray.

*Malva parviflora*, L. Stem stellate-hairy, the branches decumbent; leaves round-cordate, obtusely 5-lobed, crenate-serrate, downy, half as long as the petiole; flowers single or clustered, pale rose-colored; carpels deeply pitted on the back, the sides rugose. Waste places, Apalachicola. Introduced.

*Malvastrum spicatum*, Gray. Stem stout, branching, hairy; leaves on long petioles, ovate, acuminate, crenate, tomentose beneath, the lower ones cordate; flowers small, in dense axillary and terminal spikes or clusters; involucl 3-leaved, as long as the very hairy calyx, and the obliquely obovate yellow petals; carpels 10-12, smooth, awnless. Apalachicola. Introduced. Stem 2-4 feet high.

*Sida cordifolia*, L. Tomentose; stem tall, branching; leaves cordate-ovate, entire, or angularly 3-lobed, crenate-serrate; flowers small, axillary, the upper ones crowded in a dense compound raceme; carpels 10-12, shorter than the two slender retrorsely scabrous awns.—Waste places, Cedar Keys, Florida. October. Annual. Stem 3-5 feet high. Leaves 2-3 inches long. Flowers  $\frac{1}{2}$  inch wide.

*Purtonia spinifex*, Willd. Shrubby, hirsute; leaves on long petioles, oblong-ovate, mostly cordate, serrate; peduncles mostly longer than the petioles; leaves of the involucl 8, lanceolate, longer than the calyx, shorter than the yellow corolla; carpel trispin-

nous—Charleston, S. C., (*Rev. Dr. Bachman* in *Herb. Durand.*) Stem 3-5 feet high. Flowers 1 inch wide.

*Urena Ribesia*, Smith. ? Stem stout, much branched, tomentose; leaves roundish-subcordate, obscurely 3-5-lobed, whitish beneath, with 1-3 glands at the base of the ribs; flowers axillary, and crowded in a terminal raceme; involucrel with 5-7 subulate lobes; corolla 3-4 times as long as the calyx; carpels 5, densely spinous.—South Florida. October. Annual. Stem 2-4 feet high. Flowers pale rose color.

*Eugenia heterophylla*, Vent. Smooth; stem angular, branching; leaves lanceolate or oblong, rarely obovate and 3-lobed, 3-nerved, the margin entire; flowers axillary, solitary, the long peduncles thickened under the flower; involucrel of 8 or more minute subulate leaves; calyx dotted with black, the 3-ribbed acute lobes much larger than the tube; petals truncate; style clavate; capsule 12-20 seeded, the seeds woolly.—Lignum Vitæ Key, South Florida. Perennial. Stem 12-18 in. high. Flowers yellow, 1½ inches wide.

*Hibiscus coccineus*, var. *integrifolius*. Leaves ovate, acuminate, undivided, or the lowest slightly 3-lobed.—Marshes near Jacksonville, East Florida.

*Riedlia serrata*, Vent. Somewhat shrubby, hairy; stem petioles, slender; leaves ovate, unequally serrate, acute; stipules linear, longer than the petioles; flowers axillary, mostly clustered, the upper ones forming a terminal interrupted spike; involucrel 3-leaved, subulate, much shorter than the petals.—Banks of the Caloosa River, South Florida. October. Stem 2-5 feet high. Leaves 1 inch long. Corolla 1 in. wide, purple.

*Riedlia hirsuta*, DC. Stem pubescent and slightly muricate, much branched; leaves ovate, subcordate, acute, smoothish, crenate serrate; stipules subulate, many times shorter than the petioles; flowers in dense terminal clusters; involucrel setaceous; corolla small, pale rose color, yellowish within; filaments half united.—Waste places, Savannah, Georgia (*Dr. Feay.*) September. Annual. ? Stem 1-3 feet high. Leaves 2-3 inches long. Flowers ½ inch wide.

*Triumfetta semitriloba*, L. Hirsute, much branched; stem slender; leaves round-ovate, acuminate, serrate, entire or angularly 3-lobed; flowers clustered, axillary and terminal, the pedicels 3-flowered; sepals apiculate, as long as the wedge-shaped petals; stamens 10-15; capsule globose, bristly.—Waste places, Manatee, South Florida, (*Dr. Feay.*) Stem 3-4 feet high. Leaves thin. Flowers small.

*Schepfia arborescens*, R. & S. Leaves ovate-lanceolate, entire; peduncles axillary, 1-3 (mostly 2)-flowered, dilated at the summit into an angular receptacle; calyx truncate, entire; corolla bell-shaped, 4-5-lobed; stamens 4-5, opposite the lobes, partly adnate, ovary 2-3 celled.—Banks of the Caloosa River, South Florida. October. A small tree with smooth, flexuous, brittle branches. Leaves 2-3 in. long. Flowers small, greenish. Fruit not seen.

*Vitis (Cissus) sicyoides*, L. Pubescent; leaves undivided, ovate, cordate, acute, finely and sharply serrate; cymes small, shorter than the leaves.—Banks of the Caloosa River, and at Palm Cape, South Florida. November. Stem long; the branchlets and leaves succulent. Berry globose, of the size of a currant.

*Picramnia pentandra*, Swartz. Branches smooth; leaflets 5-7, ovate-oblong, entire, opposite or alternate, obtuse; racemes 3-4, slender, drooping, forming a simple terminal panicle; flowers small, single or clustered; stamens 5, exserted; stigma sessile.—Miami, South Florida, (*Dr. Garber.*) June. A slender shrub, 8-10 feet high. Leaflets 2-3 in. long, distant, smooth and shining. Racemes 3-6 in. long.

*Myginda pullens*, Smith. Leaves elliptical, very obtuse, crenate, smooth, nearly sessile; peduncles forking, with the middle flower stalked; style distinct, 4-cleft.—South Florida, *Dr. Blodgett*, in *Herb. Gray.*

*Sapindus Saponaria*, L. ? Petioles broadly winged; leaflets 6 or 8, mostly opposite, oblong, obtuse, mostly equal-sided, paler and pubescent beneath; panicle tomentose,

hoary.—South Florida. November. A small tree. Panicle loosely or densely-flowered. Drupe size of that of *S. marginata*.

*Polygala Rugelii*, Shuttleworth. Stem simple, or at length branching above; leaves alternate, lanceolate, acute, sessile, the lowest ones narrowed into a petiole; spikes long-peduncled, glabrous; wings oblong-obovate, cuspidate; caruncle and seed as in *P. lutea*. Tampa (*Rugel and Feay*). Stem 12–18 in. high. Flowers drying dark brown.

*Crotalaria maritima*, n. sp. Stem low, much branched, pubescent with short appressed hairs; leaves simple, small, oblong, sub-sessile, very thick and succulent; stipules minute and narrowly decurrent, or none; raceme 2-flowered; legume smooth.—Sandy beach at Palm Cape, South Florida. Stem 6 in. high. Leaves 1 in. long. Flowers not seen.

*Crotalaria pumila*, Ort. Perennial? Stem spreading, slender, smoothish; leaves trifoliolate, leaflets small, oblong-obovate, emarginate, longer than the petioles; stipules minute; peduncles much longer than the leaves, few-flowered; corolla small, yellow; legume nodding, oval, pubescent. (*C. littoralis*, H. B. K.)—Sandy beach at Casey's Pass, South Florida. October. Stem 2–3 feet long, sparingly branched. Leaflets  $\frac{1}{2}$ –1 inches long. Legume  $\frac{1}{2}$  in. long.

*Crotalaria incana*, L. Annual, erect, much branched, pubescent; leaves trifoliolate, long-petioled, leaflets round-obovate, shorter than the petiole, smoothish, paler beneath; stipules setaceous, caducous; raceme stout, many flowered, the hibracteolate pedicel nodding; keel of the yellow corolla tomentose on the margin; legume oblong, villous. Coast of South Florida from Cedar Keys (*Dr. Garber*) to Cape Romano. October. Stem 3–5 feet high.

*Petalostemon roseum*, Nutt. Leaflets 3–4 pairs, very narrow linear; calyx smooth, the teeth nearly as long as the tube; petals obovate, rose-color; bracts setaceous, longer than the calyx; otherwise like *P. violaceum*.—Low pine barrens, East Florida.

*Lespedeza striata*, Arnott & Hook. Stem branched, pubescent; leaves small, leaflets oblong-obovate, mucronate; stipules persistent, scarious, ovate-lanceolate, strongly veined, twice as long as the petioles; racemes 1–5 flowered, shorter than the leaves; calyx veiny, the ovate teeth shorter than the round-ovate reticulate legume; flowers purple. Fields and way-sides. Macon, Ga. (*Dr. Mettair*, 1865). Now spreading over the Southern States. Introduced from Asia. Stem 6–18 inches high. Leaves  $\frac{1}{2}$ –1 in. long.

*Desmodium triflorum*, DC. Stem filiform, prostrate, rooting at the joints, pubescent; leaflets small, orbiculate, smooth above; peduncles axillary, 2–3 together, 1-flowered; legume curved, 3–4 jointed, the joints flat, semi-circular.—Waste places, Manatee, South Florida, (*Dr. Feay, Dr. Garber*). Stem 6–12 in. long.

*Erythrina Corallodendron*, L. ? The tree I saw on the banks of the Caloosa River in October was 15–20 feet high, and 4–6 in. in diameter, without flowers or fruit. The leaves were like those of *E. herbacea*.

*Galactia Cubensis*, H. B. K. Stem long, twining, villous; leaflets oval or oblong, rarely acute, soon smooth above, silky beneath, rather longer than the villous petioles; racemes curving, longer than the leaves, spicate; flowers approximate, large, purple, the vexillum obliquely striate; legume silky, falcate, compressed, 10-seeded. (*G. spiciformis*, var: Chapm., S. Fl.) South Florida (*Rugel* in Herb. Gray.)—Lignum Vitæ Key. November.

*Ecastaphyllum Broomei*, Pers. Stem branching, slender; leaflets single, ovate, acute finely pubescent above, paler and velvety beneath, short petioled; panicle cluster-like, axillary, as long as the petiole; corolla small, white; legume orbicular, compressed, 1-seeded.—Banks of the Caloosa River. November. Miami, South Florida. (*Dr. Garber*.)—Shrub 4–8 feet high. Leaflets 3–5 in. long. Legume 1 in. long.

*Cassia ligustrina*, L. Annual? Smooth, mostly simple; leaflets 10–16, opposite,

lanceolate, oblique at the rounded base, the subulate gland near the base of the petiole, or rarely between the lowest pair of leaflets; racemes short, axillary, the upper ones approximate, few-flowered; sepals obtuse; legume linear, slightly curved, compressed, many seeded.—Sandy coast, from Tampa Bay southward, South Florida. Stem 3-4 feet high. Leaflets  $1\frac{1}{2}$ -2 in. long. Legume 4 in. long.

*Psidium pyriforme*, L. (Guava) Branchlets 5-angular, compressed; leaves thick, opposite, oval-oblong, strongly veined, paler and softly pubescent beneath; pedicels axillary, 1-flowered; fruit pear-shaped.—Clear Water Harbor and Southward, South Florida. Introduced. A small tree.

*Jussiaea macrocarpa*, Vahl. Branches hirsute, leaves broadly lanceolate, acute at each end, hirsute; peduncles barely longer than the 2-bracted club-shaped ovary; calyxlobes 4, ovate-lanceolate, acuminate, longer than the tube, shorter than the roundish petals; capsule wedge-oblong, obscurely 4-sided, longer than the bracts.—Muddy Banks of the Caloosa River and at Miami, (*Dr. Garber*) South Florida. Shrub 5-10 feet high. Leaves 3-4 in. long. Corolla 2 in. wide.

*Mentzelia Floridana*, Nutt. This is a shrubby, trailing plant, 3-10 feet long, from Tampa Bay southward.

*Viburnum involueratum*, n. sp. Leaves small, varying from oblong to broadly ovate, entire, irregularly serrate, or slightly 2-3 lobed, acute at each end, or rounded at the base; cymes small, compact, the base and ramifications involucre with a whorl of linear spatulate bracts.—Wooded hill-sides. West Florida. April. Shrub 2-4 feet high. Leaves 1-2 in. long.

*Richardsonia scabra*, St. Hill. Annual, hirsute, the branches dichotomous; leaves thick, ovate, acute, rough above and on the veins beneath, the 2 upper pairs involucre-like; calyxlobes subulate; corolla funnel-shaped, 3-6-lobed; nutlets 2-3, oblong. (*Spermiacoe involucreta*, Ph!)—Southern Alabama, thence spreading throughout the warmer parts of the Gulf States. Stem  $\frac{1}{2}$ -3 feet long. Flowers white.

*Vernonia angustifolia*, Michx., var. *pumila*. Stem low (6-12 in.), slender, smoothish; leaves (1- $1\frac{1}{2}$  in. long) scattered, flat, lanceolate, entire, or the lowest minutely denticulate; heads 3-7 in an open cyme, pedicellate; involucre purplish, smooth; pappus yellowish; achenium smooth, furrowed.—Wet pine barrens near the Caloosa River, South Florida. October.

*Pectis ciliaris*, L. Stem erect, branching, smooth; leaves linear, crowded, sub-conate, bristly fringed below the middle; heads linear, nearly sessile; rays 3, pappus of the disk flowers of 5 lanceolate acuminate scales, of the rays 3.—Collier's Key, in Caximbas Bay, South Florida. September. Stem 1 foot high.

*Eupatorium suaveolens*, n. sp. Stem long, slender, smoothish, branching; leaves small, ovate, tapering to the obtuse apex, abruptly contracted at base, coarsely and unequally serrate, 3-nerved, twice as long as the very slender petioles; corymbs loose, compound, pubescent; heads 12-14-flowered; corolla white, achenium slightly pubescent. Clear Water Harbor and Manatee, South Florida. November. Stem 2-3 feet long. Leaves 1- $1\frac{1}{2}$  in. long. Flowers very fragrant. Closely allied to *E. aromaticum*, but with the habit of *E. incarnatum*.

*Eupatorium tortifolium*, n. sp. Stem erect, slightly scabrous, pubescent, corymbose above; leaves vertical, lanceolate, entire, sub-sessile, 3-nerved, the upper ones linear, alternate; corymb compound, villous; heads large, crowded, 5-flowered; scales of the involucre linear, acute, villous; achenium smooth; pappus stout, longer than the white corolla.—Dry pine barrens, Decatur county, Georgia. Stem 12-18 in. high. Leaves 1- $1\frac{1}{2}$  in. long.

*Conoclinium dichotomum*, n. sp. Stem smoothish, erect, diffusely dichotomous; leaves opposite, deltoid, barely acute, crenate-serrate, truncate and entire at the base, twice as long as the short petiole; corymbs very numerous, mostly in the forks of the

branches, dense, short-peduncled; heads few (3-10), on short pedicels; flowers blue. South Florida. Stem 1-2 feet high. Leaves 1-1½ in. long. Flowers smaller than those of *C. celestinum*, blooming, in cultivation, from May until frost.

*Ocotinum rigidum*, DC. Frutescent at base, closely pubescent; stems numerous, erect branching; leaves opposite, ovate, crenate-serrate, acute, longer than the petioles; pedicels single, or 2-3 together in the forks of the branches, unequal, longer than the cylindrical many-flowered heads; scales of the involucre smooth, closely imbricate, striate, obtuse, deciduous; flowers (about 20) pale blue; achenium smooth, 3-4 angular; receptacle globular or truncate, naked.—Jew-fish Key, South Florida. November. Plant 2 feet high, exhaling a strong unpleasant odor.

*Acanthospermum xanthioides*, DC. Stem prostrate, diffusely branching, pubescent; leaves opposite, oval or obovate, toothed or entire; heads single, terminal and in the forks of the branches, many-flowered; rays yellow; chaff of the receptacle obtuse, unarmed at the tip.—Aiken, South Carolina (*Ravenel*), Atlanta and Savannah, Georgia, Jacksonville and Gainesville, Florida.

*Actinomeris heterophylla*, n. sp. Stem erect, mostly simple, sparingly hirsute, terete and nearly naked above, the lower part winged by the decurrent leaves; leaves muricate, the lower ones oblong, opposite, approximate, half clasping, serrate, decurrent, the upper linear, opposite or alternate, small (½-1 in. long), remote, entire; heads solitary or corymbose, on slender peduncles; scales of the involucre lanceolate, mostly shorter than the disk, shorter than the 5-10 linear yellow rays; chaff of the receptacle rigid, acute, longer than the obovate narrowly winged 1-2 awned achenium.—Sandy pine barrens, East Florida. Stem 2-3 feet high. Leaves 2-3 inches long.

*Fluoceria angustifolia*, Pers. Stems shrubby at the base, numerous, erect, smooth, branching; leaves thick, lanceolate, acute, remotely serrulate, connate and sheathing at base; corymbs numerous, compact; heads 10-15 flowered, angular, discoid, or with a single oblong or entire ray.—Sand Key, at Clear Water Harbor, Oct. Stems 2-4 feet high.

*Pulfoxia Feayi*, Gray. Shrubby; stem slender, widely branching, roughish with short rigid hairs; leaves ovate and lanceolate, opposite and alternate, longer than the short petioles; corymbs loose, spreading; heads discoid; achenia slender, sparingly hispid, as long as the linear obtuse scales of the involucre, and many times longer than the obtuse denticulate scales of the pappus.—Tampa Bay (*Dr. Feay*), and southward to Caximbas Bay. South Florida. October. Stem 3-5 feet long. Leaves 1-2 in. long.

[To be continued.]

NOTES ON HEPATICOLOGY, BY C. F. AUSTIN.—*TRICHOCOLEA BIDDLECOMLE*, n. sp.—*Caule tenella arcte repens (semper?) subunciali simpliciter breviter pinnato, foliis fere transversalibus (subsuccubis) illis et amphigastriis fere ad basim capillaceo dissectis, fructu—?*

On a rotten log in the cedar swamps, near Urbana, Ohio, 1876, *Miss H. J. Biddlecome*.

Much smaller than the smallest form of *T. Tomentella* (ERHR.) NEES, ever observed by me and readily distinguished from it by its simple and rather distantly pinnate stems. Its habitat, on rotten wood (to which it closely adheres), is also peculiar.

*T. Tomentosa* (SWARTZ) NEES, has a similar ramification, but is also a much larger plant, with the leaves strongly succubous (very oblique), and often not divided more than half way to the base.

*TRICHOCOLEA GRACILLIMA*, n. sp.—*Caule gracillimo biunciali irregulariter dissitiuscule bipinnatim ramoso, rameis apice subrecurvis foliis subsuccubis fere ad basim dissectis, segmentis terretis (articulatis) pro genere crassis, fructu—?*

On shaded ground, Island of West Maui, (altitude 4,000 feet), *D. D. Baldwin* (*Eaton*.)